

NOTE

RECOVERY OF PATASSON LUNA (HYMENOPTERA: MYMARIDAE)
A PARASITE OF THE ALFALFA WEEVIL, HYPERA POSTICA (COLEOPTERA:
CURCULIONIDAE), IN ALBERTA

The alfalfa weevil, *Hypera postica* (Gyll.), was introduced into the United States near Salt Lake City, Utah in 1904 and by 1907 had become a serious pest in Salt Lake County (Titus, 1910). In southeastern Alberta, this pest was first located in alfalfa fields in the valley of the Milk River in June 1954. No egg parasites were recorded in studies of the biology and distribution of *H. postica* from 1955 to 1958 (Hobbs *et al.*, 1959). However, in 1978, during studies of the weevil in the Brooks area of Alberta, several specimens of a parasite were reared from alfalfa weevil eggs. Adults sent to the Biosystematics Research Institute, Agriculture Canada, Ottawa, were tentatively identified by Dr. Carl M. Yoshimoto and later confirmed by Mr. M. Schauff of the University of Maryland, College Park, Maryland, to be *Patasson luna* (Girault).

The characters used to separate this species from a very closely related species *Anaphes pratensis* Foerster, can only be seen under a microscope and only in the females. The two species can be easily mistaken for each other. This is apparently what happened in several releases. During the years 1911–1913 and 1925–1928, *P. luna* that had been collected in Italy were released in Utah in an attempt to establish a biological control agent for control of the alfalfa weevil (Chamberlain, 1924a; Clausen, 1956). *Patasson luna* was probably confused with *A. pratensis* in these releases, because, in 1926, *A. pratensis* was recovered from several fields near Salt Lake City, Utah (Hamlin *et al.*, 1949), but *P. luna* was not recovered at this time. *Patasson luna* from France was introduced into alfalfa fields in California around 1933 (Essig and Michelbacher, 1933) but has not been recovered since its release (K. S. Hagen, per. comm.). However, *P. luna* was collected in Idaho in 1921 (M. Schauff, per. comm. 1980; due to their condition, only a tentative identification of *P. luna* has been given to these specimens), in Utah by D.W. Davies (Dysart and Day, 1976) in 1973, and in Alberta in 1978.

Patasson luna has been reared from alfalfa weevil eggs in the eastern United States from Delaware, Indiana, Illinois, Maryland, Massachusetts, New Jersey, New York, Ohio, Pennsylvania, and West Virginia. In eastern Canada, it has been collected in Ontario and Quebec. The exact method of establishment in eastern North America has never been documented. It seems probable that *P. luna* was introduced into this area with a shipment of *A. pratensis* sent to Indiana for control of *Hypera nigrirostris* (F.) in 1928 (Christie, 1928, p. 43) and that it subsequently spread throughout most of the eastern United States.

At Brooks, Alberta, most seed alfalfa is grown on irrigated land surrounded by mixed grains to the north and west, and by mixed grain or grasslands to the south and east. No alfalfa hay is imported into these irrigated areas. Apparently, *P. luna* entered by migrating over mountains from Idaho, or possibly from the southeast from Montana along the Missouri and Milk River systems and then across the grainland and grassland.

In southern France, *A. pratensis* and *Patasson* spp. infest eggs of *Sitona* sp. and *Hypera* sp. in alfalfa crops (Aechlimann, 1977). Chamberlain (1924b) and Hamlin *et al.*, (1949)

showed that *P. luna* and *A. pratensis* parasitize eggs of the clover leaf weevil, *Hypera punctata* (Fabr.) in the United States. When clover leaf weevils become scarce, both parasites will use eggs of *H. postica* for oviposition. The egg of *H. punctata* is much larger than *H. postica* and, according to Chamberlain (1924b), *P. luna* places two eggs in each egg of *H. postica*.

Patasson luna may also use a wide range of *Sitona* and other *Hypera* spp. as their primary host and as these hosts become scarce they migrate and infest *H. postica* eggs as they do in Europe.

The overwintering method or stage of this parasite is not known in Alberta, but, since a few eggs of the clover leaf weevil persist through the winter (Clausen, 1956), it seems possible that it is in this host that *P. luna* survives the winter.

During the spring of 1979, no specimens of *P. luna* were recovered from eggs of the alfalfa weevil. Therefore, the species is considered at present to be of limited importance in the control of the alfalfa weevil in Alberta.

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